

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

DATE: APR 25 1986

SUBJECT: Comments on Draft Phase 11/1V-A Report Suffolk County Air National
Guard Base

FROM: *Karen Sudy*
Karen Sudy, Environmental Engineer
New York/Caribbean Remedial Action Branch

TO: Joyce Feldman, Environmental Scientist
New Jersey Site Investigation & Compliance Branch

1. Are there any surface water migration routes on the site?
If so, surface water sampling should be included with the soil,
unsaturated zone, and saturated zone sampling.
2. The site map on page 4 doesn't show all the monitoring wells
that are identified in the appendix (well sampling date, May
1982). Have a map that shows all the monitoring well locations.
3. It is stated that the soil borings shall be drilled to depths
of approximately 36 feet. What is the reasoning for 36 feet?
4. The QA/QC for soils should include a water trip blank.



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2ERRD/NYCRAB/K. SUDY/mr:4/24/86 on Karen Sudy's Disc
Revised by K. SUDY;4/24/86 mr

CONCURRENCES

SYMBOL	NYCRAS						
SURNAME	SUDY						
DATE	4/25/86						

Suffolk County Air National Guard Base
Westhampton Beach, New York

EPA Comments on March 11, 1986 Draft Phase II/IV-A Report - 5/9/86

1. General Comments

- a. Define ownership/tenancy of the entire base; include a detailed map.
- b. Discuss other studies/reports already performed or scheduled relative to potential contamination at other base locations.

2. Site Specific Comments

- a. Section 5.2.2, page 7 - provide the chemical usage data and any future data as they become available.
- b. Section 5.2.7, page 12 - EPA generally prefers the use of stainless steel to case and screen monitoring wells; justification must be provided for use of other materials (see attached chart).
- c. If any surface water migration routes exist for this site, sampling should be performed.
- d. Not all of the monitoring wells identified in the Appendix (Figure 2) are identified on the map on page 4 of the report. EPA would like locations of all wells identified and information provided on depth and construction of these wells. It may be that some of the existing wells can be used for the subject investigation.
- e. What is the reasoning behind drilling the soil borings to depths of approximately 36 feet?
- f. The QA/QC for soils should include a water trip blank.
- g. A Health & Safety plan and a QA/QC plan should be prepared and approved prior to commencement of work.
- h. The installation of 42 monitoring wells (six well clusters at seven locations) may be excessive. The use of existing wells, if possible, and/or installing wells on a phased approach should be considered.

Sect. 5.2.6
page 9

sect page 15, 16-17

GROUND WATER MONITORING WELLS: Rigid Materials Comparison

Criteria	Teflon	Stainless Steel (304, 316, 2205)	PVC
1. Leaching	None	Chromium or nickel leaching after long exposure to very corrosive conditions. Type 316 preferred in pharmaceutical industry where excessive metal contamination must be avoided.	Residual vinyl chloride monomer (RVCM) leaching is < 2 ppb. Residual waxes and fatty acids and esters may be coated on PVC pipe and be leached if not cleaned. Only NSF (National Sanitation Foundation) listed PVC pipe should be used which is leach-tested for antimony, arsenic, barium, cadmium, chromium, lead, mercury, phenolic substances, RVCM, selenium, and tin. Solvent cementing is not permitted. Cements release high concentrations (>100 ppb) of methylethyl ketone (2-butanone), methylbutyl ketone, cyclohexanone, tetrahydrofuran, & dimethyl formamide.
2. Chemical/physical interactions with environment	None	Corroded by hydrochloric and nitric acids and high chloride (seawater).	Reacts with aqueous organic mixtures of benzene, butyl alcohol, carbon tetrachloride, chlorobenzene, cresol, methylene chloride, naphtha, phenol, toluene, trichloroethylene, xylene. Exposure to ketones (acetone), aldehydes, acids, amides, chlorinated alkenes or alkanes cause PVC degradation and/or release of pipe ingredients (organotins, CaCO_3 , clay, TiO_2 , metallic oxides). Slotted PVC exposes large surface area of PVC and thereby increases risk of releasing compounding ingredients. Reaction with organics increases the likelihood of adsorption interaction with medium.

GROUND WATER MONITORING WELLS: Rigid Materials Comparison

Galvanized Steel	Carbon Steel
Leaches iron, manganese, and zinc.	Leaches iron, manganese, copper, zinc, cadmium, cobalt, nickel, and molybdenum.
Same as carbon steel after coating of zinc is removed.	Reacts to form oxides of iron and manganese, as well as various metal sulfides. The iron oxides are converted to ferric hydroxide (a colloidal gel) which absorbs organics. The oxides can alter metals and organic concentrations through dissolution, coprecipitation, and chemical reactions. Under reducing conditions, metallic corrosion products will be introduced into ground water samples. Corrosion particles accumulate in a pile on the bottom of the well and are resistant to purging efforts to clean well.

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Criteria	Teflon	Stainless Steel (304, 316, 2205)	PVC
3. Corrosion resistance	Does not corrode. <i>is this true Sealing installation</i>	316 is resistant to caustic/basic solutions of hydroxides, carbonates, and bicarbonates. Type 316 resistant to sulfates and sulfuric acid. <i>for</i> 304 low resistance to hydrochloric and nitric acids, metallic chlorides, and seawater or high chloride concentrations.	Non-corrosive, except for organic or aqueous organic media. <i>not in the same way</i>
4. Structural durability	High for casing. Screens are structurally unstable.	High tensile strength and durability.	PVC not recommended for depths >30 feet or in unstable geologic formations. Schedule 80 recommended over schedule 40.
5. Best usage conditions	All conditions only in rare occasions due to cost	See #8	All except organic media and below 30 feet. Good for investigative short term work.
6. Recommendations by EPA/RCRA, EPA/ISWA, ASTM, and NWA groups	1	2	3

gas flow
investigative
O+M
performance
precision

Galvanized Steel	Carbon Steel
Greater resistance to corrosion than carbon steel. However, corrosion occurs in media of high chloride, carbonate, and nitrate with a pH between 5 and 7. Sulfur compounds, organic compounds and dissolved copper can contribute to rapid deterioration under saturated conditions. Galvanized pipe used in wetlands and bog environments show high leaching of zinc (10 ppm) into media with a deterioration of zinc coating on pipe.	Poor corrosion resistance. High humidity in monitoring wells causes condensation of water droplets which leads to corrosion. Water droplets carry oxidized particles into ground water. Sampling techniques necessarily involves scraping of casing wall causing corrosion particles to be sloughed off into ground water. Corrosion is accelerated in media containing chloride, carbonate, and nitrates.
Good, except for corrosive environments, such as chloride, carbonate, nitrate, and as cited in #3.	Low durability due to poor corrosion resistance.
Should be used for short-term monitoring and where a neutral pH condition exists.	Not recommended except for pinpointing ground water flow and routes of transport.
4	Avoid use of carbon steel

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Criteria	Teflon	Stainless Steel (304, 316, 2205)	PVC
7. NSRP recommendations	Use only if stainless steel or PVC are inadequate, due to high cost of Teflon.	Should not be used when metals are the analytes of interest. Recommended for non-corrosive applications.	Should not be used for critical long-term trace organics monitoring projects. Appears to be adversely affected by high organic concentrations. PVC should not be used in geologically unsound formations or in formations where high temperatures may be found (such as on or surrounding landfills). PVC casings should be used in the initial site survey phase of a project. If long-term monitoring is required, a detailed monitoring program should be designed using key wells constructed of Teflon or stainless steel. PVC wells can be used initially to pinpoint ground water flow and possible routes of contaminant transport.
8. ^{ESD} Region II recommendations	Use only if stainless steel or PVC are inadequate, due to high cost of Teflon	Use 316 when CW is highly acidic (pH <4) or high chloride content (>2000 ppm). Use 304 when chloride <1000 ppm and pH >5.	Can be used to monitor for metals in media that are free of the above (see #2) specified organic compounds. Can be used for qualitative, short-term organic monitoring (<30 days) when organic concentrations are >10 ppm. Can not be used for long-term (>30 days), water quality monitoring that are critical for health risk determinations. When in doubt about organic interactions, paired PVC and stainless steel wells can be located side-by-side to determine any potential bias due to PVC. PVC can also be used for initial site survey to obtain preliminary estimates of a qualitative nature of the types of contaminants present.

Galvanized Steel	Carbon Steel
Not evaluated	Not evaluated
Not recommended <i>Galvanized steel at Montclair/Calderdale for radionuclide monitoring.</i>	Not recommended

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